Complainant's Exhibit No. 127

DAVID G. GRAY

EDUCATION

1993 Ph.D., Toxicology, University of Minnesota

1982 Master of Public Health in Environmental Science, University of Minnesota

1965 Bachelor of Physics, University of Minnesota

EXPERIENCE

Dr. Gray, Program Director for Toxicology at Sciences International, Inc., has over 25 years of experience conducting toxicology and public health programs. Dr. Gray's Toxicology Program at Sciences is responsible providing toxicology and risk assessment support to government and private sector clients. Dr. Gray has served as an expert toxicology witness for several years for a class action in the Circuit Court of Wood County West Virginia seeking compensation to provide medical monitoring to detect the potential effects of perfluorooctanoate (PFOA) toxicity in a large residential population. Groundwater used as a source of drinking water for this population has become contaminated to potentially hazardous levels by discharges from a large facility using PFOA in the manufacture of Teflon coated products. Dr. Gray has prepared a number of risk assessment documents and proposed medical monitoring protocols for the exposed population.

Support for the public sector includes the assessment of food additives for the U.S. Food and Drug Administration, the development of IRIS file support documents for U.S. Environmental Protection Agency (EPA) National Center for Environmental Assessment (NCEA) and the Office of Water (OW), and of Toxicology Profiles for the Agency for Toxic Substance and Disease Registry (ATSDR). Recently, Dr. Gray and his staff closely supported EPA as they developed a revised drinking water standard for arsenic. Examples of Dr. Gray's work for private sector clients include state required air toxics reviews, product stewardship programs, litigation support, and a broad range of other regulatory issues such as the development of a new risk assessment for *n*-hexane for submission to the EPA. The *n*-hexane risk assessment was also used by several states in setting air toxics standards and in permitting.

Formerly, Dr. Gray was with the Minnesota Department of Health where he first conducted environmental monitoring programs and then directed a large laboratory with a budget of $700,000 from 1973 to 1978. In 1978 he became Chief of the Health Risk Assessment Section, overseeing the state's risk assessment and toxicology programs. He played a major role in the development of risk assessment policies and standards, particularly in the areas of drinking water, groundwater, and air toxics. In this position he was instrumental in bringing about consensus among diverse interest groups, such as environmental organizations, resort owners, and federal and state agencies, on risk assessment and management policies in Minnesota. In addition, Dr. Gray was responsible for the development of drinking water standards for nearly 200 contaminants and the establishment of a rationale for the acceptable lifetime cancer risk standard which has been used in Minnesota from 1982 to the present.

Risk Assessment and Toxicology

- ***Project Manager, U.S. EPA, Office of Water Contract.*** Provided toxicology support to the Office of Water including the development of Drinking Water Criteria Documents identifying human health risk associated with approximately 50 contaminants in drinking water for use in setting MCLs. Developed proposed options for revising the arsenic MCL.

- ***Project Manager, U. S.EPA, National Center for Environmental Assessment Contract.*** Provided toxicology support to EPA in drafting toxicology support documents for the Integrated Risk Information System (IRIS). Conducted research for EPA to develop the use of new tools in toxicology, such as categorical regression and computer assisted approaches to benchmark dose development.

- ***Program Manager, U.S. FDA Center for Food Safety and Nutrition Contract.*** Conducted toxicology, chemistry, and environmental reviews for FDA. Developed petition data evaluation reports for FDA on indirect food additives which may enter the U.S. diet from food packaging. The evaluations included a detailed review of the toxicology, chemistry, and environmental aspects of each proposed new additive.

- ***Developed n-hexane RfC.*** Developed RfC for n-hexane accepted by the states of Minnesota and Missouri for use in air toxics standard setting or permit development. Submitted to the EPA as a requested change in the IRIS file for *n*-hexane.

- ***Developed Risk Rules.*** Assisted the state of Kentucky (1996) in development of risk assessment rules and conducted workshops for the regulated community to brief them on the new rules.

- ***Evaluated DOE Sites.*** Conducted an evaluation of risk assessment studies conducted at the INEL DOE site.

- ***Developed Water Standards.*** Developed risk-based drinking water standards (88 contaminants) and guidelines (195 contaminants) for use by all state programs regulating water quality. Conducted environmental review and assessment of risk for large facilities (e.g., incinerators and landfills) prior to the issuance of state permits.

- ***Fish Consumption Advisories.*** Issued risk-based fish consumption advisories to 1.5 million Minnesota anglers for 426 lakes and 38 streams with mercury, PCB, and dioxin contaminated fish.

- ***Issued Well Advisories to the Public.*** Advised owners of contaminated residential water wells as to any recommended limitations in water use.

- ***Active in PBPK Research.*** Dr. Gray has developed a physiologically-based pharmacokinetic (PBPK) model for methylmercury in the pregnant rat and fetus. This model was one of first PBPK models to use dynamically changing physiologic parameters to model fetal growth and changes in the maternal rat during gestation. This model was able to estimate an organ-based methylmercury dose response for the rat with the fetal brain as the critical target. He also participated in workshop series in PBPK modeling sponsored by EPA and George Washington University in 1996.

Environmental Program Management

- ***Risk Assessment Section Chief.*** As Chief of the Section of Health Risk Assessment, Minnesota Department of Health, managed 13 scientists, including 6 Ph.D. toxicologists, responsible for risk assessment and toxicology for all state programs.

- ***ATSDR Program Director.*** Program Director for a grant ($311,000/year budget) from the U.S. Agency for Toxic Substance and Disease Registry funding health assessments of all federal Superfund sites (42) from 1987 to present.

- ***Environmental Laboratory Manager.*** Managed a large laboratory (45-55 staff, $700,000 budget in 1976) responsible for all chemical and radiological analyses of environmental (water, air, soil, etc.) samples for all Minnesota agencies.

- ***Improved Operational Efficiency.*** Streamlined the laboratory cost accounting system to accurately bill laboratory clientele and developed a computerized data acquisition and handling system to increase laboratory efficiency.

- ***QA Program.*** Established quality control procedures to control data precision and accuracy of analytical laboratory procedures to U.S. Environmental Protection Agency standards.

Environmental Monitoring

- ***Nuclear Monitoring Studies.*** As Research Scientist/Systems Analyst for the Minnesota Department of Health, conducted environmental monitoring programs for the Monticello and Prairie Island nuclear power plants to meet U.S. Atomic Energy Commission (USAEC) requirements.

- Designed nuclear power plant monitoring studies, collected samples, conducted laboratory analyses, and wrote final reports to the USAEC.

- Developed new methods for the chemical analysis of environmental samples, improving sensitivity and reducing cost.

- Assisted program managers in five state agencies in the interpretation of environmental data.

EMPLOYMENT HISTORY

1994-present	Sciences International, Program Director, Toxicology
1978-1994	Minnesota Department of Health, Chief, Risk Assessment Section
1973-1978	Minnesota Department of Health, Director, Chemistry Laboratory

SPECIAL ACHIEVEMENTS

Developed rationale for the acceptable lifetime cancer risk standard used by Minnesota environmental agencies from 1982 to the present.

Major role reaching consensus on risk assessment policies for the Great Lakes Sport Fish Advisory Task Force of the Council of Great Lakes Governors.

Convened an advisory committee including the regulated community and environmental groups to reach essential consensus on risk assessment issues for the development of groundwater standards for 88 contaminants.

Developed and published drinking water guidelines for 120 to 195 contaminants from 1986 to the present for use by state agencies.

Obtained consensus of a committee of resort owners, fishing guides, federal and state agencies, and environmental groups for risk assessment and management policies used in the Minnesota sport fish consumption advisory.

PUBLICATIONS

Pepelko, B., Seckar, J., Harp, P., Kim, J., Gray, D., and Anderson, E. 2004. Worker exposure standard for phosphine gas. Risk Anal. 24(5), 1201-1213.

Gray, D. An application of PBPK models in the assessment of risk of methylmercury contamination of fish tissue (In preparation).

Gray, D. 1995. A physiologically-based pharmacokinetic model for methylmercury in the pregnant rat and fetus. *Tox. App. Phar.* 132, 91-102.

Shubat, P.J., Gray, D. 1993. Use of a pharmacokinetic model to derive consumption advisories for mercury-contaminated fish. Abstract presented at Society of Toxicology meeting. New Orleans, Louisiana.

Gray, D., et al. 1975-1993. Annual Minnesota fish consumption advisory. Minnesota Department of Health, Section of Health Risk Assessment, Minneapolis, MN.

Gray, D., et al. 1986. Background polychlorinated biphenyl (PCB) levels in public buildings. Minnesota Department of Health, Section of Health Risk Management, Minneapolis, MN.

Gray, D., et al. 1983. Residential indoor air pollution from unvented kerosene space heaters. Minnesota Department of Health, Section of Health Risk Assessment, Minneapolis, MN.

Gray, D., et al. 1982. Health effects of acid precipitation. In: Acid precipitation in Minnesota: Report to the Legislative Commission on Minnesota Resources. Minnesota Pollution Control Agency, Minnesota Department of Health, St Paul, MN.

Gray, D., et al. 1982. CU-TR-1 electrical environmental monitoring report. Minnesota Department of Health, Section of Health Risk Assessment, Minneapolis, MN.

Gray, D., et al. 1981. The use of risk assessment methodology in the analysis of alternative solutions to low-level environmental exposures to hazardous materials. Minnesota Department of Health, Section of Health Risk Assessment, Minneapolis, MN.

Garry, V.F., Oatman, L., Pleus, R., Gray, D. 1980. Formaldehyde in the home. *Minnesota Medicine* 63, 107-111.

Garry, V.F., Hozler, J., Jacobs D., Wade, R.L., Gray, D.G. 1979. Ethylene oxide: Evidence of human chromosomal effects. *Environmental Mutagenesis* 1, 375-382.

Gray, D., et al. 1978. Implications of polynuclear aromatic hydrocarbons in St. Louis Park drinking water. Minnesota Department of Health, Section of Health Risk Assessment, Minneapolis, MN.

Gray, D., et al. 1978. Assessment of human health risk associated with the use of 2,4-D in forestry management. Minnesota Department of Health, Section of Health Risk Assessment, Minneapolis, MN.

Bishop, K., Ring, S., Suchanek, R., Gray, D.G. 1978. Preparation losses and size alterations for fibrous mineral samples. *Scanning Electron Microscopy.*

Gray, D., et al. 1977. Quantitative assessment of human health risk associated with mercury contamination of fish in northern Minnesota. Minnesota Department of Health, Minneapolis, MN.

Gray, D., et al. 1977. Assessment of possible human health effects resulting from the contamination of the former Republic creosote site. Minnesota Department of Health, Minneapolis, MN.

Gray, D., et al. 1974. Environmental monitoring program annual report for the Monticello Nuclear Generating Plant, 1973: Radiation monitoring. Northern States Power Company. Minneapolis, MN.

Gray, D., et al. 1974. Environmental monitoring and ecological studies program: 1973 Annual report for the Prairie Island Nuclear Generating Plant. Northern States Power Company, Minneapolis MN.

Gray, D., et al. 1973. Environmental monitoring and ecological studies program: 1972 Annual report for

the Prairie Island Nuclear Generating Plant. Northern States Power Company, Minneapolis MN.

Gray, D., et al. 1973. Environmental monitoring and ecological studies program: 1972 Annual report. Northern States Power Company, Minneapolis MN.

Gray, D., et al. 1972. Prairie Island Nuclear Generating Plant environmental monitoring program: 1971 Annual report: Radiation surveillance. Northern States Power Company, Minneapolis MN.

Gray, D., et al. 1971. Environmental monitoring and ecological studies program: 1971 Annual report. Northern States Power Company, Minneapolis, MN.

Gray, D., et al. 1971. Environmental monitoring and ecological studies program: 1970 Annual report for the Prairie Island Nuclear Generating Plant. August 30, Northern States Power Company, Minneapolis MN.

Gray, D., et al. 1969. Environmental monitoring annual report for the Monticello Nuclear Generating Plant: 1969 Radiation monitoring. Northern States Power Company, Minneapolis MN

Gray, D., et al. 1969. Environmental annual report for the Monticello Nuclear Generating Plant: 1968 Radiation monitoring. Northern States Power Company, Minneapolis MN.